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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/755,447	01/13/2004	Shuya Shinohara	TAN-331	1085

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EXAMINER

SELLERS, ROBERT E

ART UNIT PAPER NUMBER

1712

DATE MAILED: 03/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/755,447

Applicant(s)

SHINOHARA ET AL.

Examiner

Robert Sellers

Art Unit

1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) 3,4,6,7,9 and 10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed..
- 6) ☒ Claim(s) 1,2,5 and 8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

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The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 2, 5 and 8 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 1, 2, 5 and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

1. The specification on pages 3-4 and claim 1 depicts an epoxy resin of general formula (2) and an aromatic compound (1) wherein general formula (2) contains the reacted moiety of general formula (1). R_1 - R_4 indicates a C_{1-6} hydrocarbon group and R_1 - R_6 represents a hydrogen atom or hydrocarbon group. Is R_1 - R_4 limited to a C_{1-6} hydrocarbon group or is hydrogen also included?

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2. The inclusion of aromatic compound (1) before the language of “reacting aromatic compound represented by general formula (1) and epihalohydrine” confuses the description and claims. The reacted aromatic compound is already depicted in the epoxy resin of general formula (2) and its position in the specification and claim 1 implies its denotation as a separate component which contradicts the subsequent language wherein the epoxy resin is prepared by the reaction of the aromatic compound of general formula (1) and epihalohydrin. General formula (2) already exhibits the reaction product of an epihalohydrin and aromatic compound (1).

3. More favorable consideration would be given to the repositioning of general formula (1) after the language of “reacting aromatic compound represented by general formula (1) and epihalohydrine” along with definitions for R_1 - R_6 consistent with that of R_1 - R_4 .

4. The 4,4'-[(1,4-phenylene)bis(isopropylidene)] bis(2-methylphenol) and 4,4'-[(1,4-phenylene)bis(isopropylidene)] bisphenol listed on page 4, lines 5 and 6 of the Detailed Description of the Invention does not conform to the aromatic compound of general formula (1). The substituent X is confined to a bond or $-(R_5)(R_6)-$ which does not embrace the 1,4-phenylene-bis(isopropylidene) moieties as illustrated by CAPLUS registry nos. 151204-83-0 and 158663-92-4, respectively.

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartmann Patent No. 4,153,621.

5. Hartmann depicts a general structure for the polymerized diglycidyl ether of 3,3',5,5'-tetraalkyl-4,4'-dihydroxybiphenyl (cols. 3-4, first general structure) wherein the the biphenyl β -hydroxypropylether repeating unit quantified by "n" is zero or an integer utilized in the fabrication of a cured product (col. 6, lines 22-32).

The claimed content of $n = 0$ of at most 60% and an epoxy equivalent weight of at least 250 are not recited.

6. Hartmann teaches the production of lower molecular weight glycidyl ethers when a ratio of epichlorohydrin to dihydric phenol of higher than 2:1 is employed (col. 3, lines 30-32). "Thus, by decreasing the mol ratio of epichlorhydrin to dihydric phenol from 14 towards two, glycidyl ethers having higher values of n and higher epoxy equivalents can be obtained (col. 3, lines 38-41)."

7. It would have been obvious to react epichlorohydrin with the 3,3',5,5'-tetraalkyl-4,4'-dihydroxybiphenyl at a molar ratio approaching 2:1 in order to mitigate the formation of lower molecular weight glycidyl ethers to within the claimed parameters of at most 60% and to predominantly form higher molecular weight glycidyl ethers with larger epoxy equivalents greater than the claimed minimum of 250 g/eq.

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Claims 1, 2, 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawano et al. Publication No. 2003/0175571 (allowed) in view of Hartmann.

8. Kawano et al. (page 1, paragraphs 6 and 7, general formula 1) exhibits an optionally C₁₋₆ hydrocarbon-substituted bisphenol F diglycidyl ether wherein the β -hydroxypropylether diphenyl methane repeating unit is as high as 15 used in a cured product (page 3, paragraph 30).

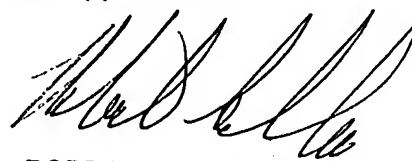
The claimed content of n = 0 of at most 60% and an epoxy equivalent weight of at least 250 are not recited.

9. It would have been obvious to prepare the polymerized diglycidyl ether of bisphenol F with a molar ratio of near 2:1 as espoused in Hartmann in order to reduce the yield of lower molecular weight glycidyl ethers to within the claimed range of at most 60% and to produce a predominance of higher molecular weight glycidyl ethers with larger epoxy equivalents exceeding the claimed minimum of 205 g/eq.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The Japanese patents set forth (alkyl-substituted biphenyl diglycidyl ethers wherein the biphenyl β -hydroxypropylether repeating unit quantified by "n" is greater than or equal to zero without specifying the quantity of n = 0 or the epoxy equivalent.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Sellers whose telephone number is (571) 272-1093. The examiner can normally be reached on Monday to Friday from 9:30 to 6:00. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.
rs 3/9/2006



ROBERT E.L. SELLERS
PRIMARY EXAMINER